First three paragraphs: "The title-page of this book necessarily bears the name of one man; but the reader will find in its pages the story, or part of the story, of many other Pioneers of Progress. The crowning achievement of anticipating the hypothesis of Copernicus belongs to Aristarchus of Samos alone; but to see it in its proper setting it is necessary to have followed in the footsteps of the earlier pioneers who, by one bold speculation after another, brought the solution of the problem nearer, though no one before Aristarchus actually hit upon the truth. This is why the writer has thought it useful to prefix to his account of Aristarchus a short sketch of the history of the development of astronomy in Greece down to Aristarchus's time, which is indeed the most fascinating portion of the story of Greek astronomy.

"The extraordinary advance in astronomy made by the Greeks in a period of little more than three centuries is a worthy parallel to the rapid development, in their hands, of pure geometry, which, created by them as a theoretical science about the same time, had by the time of Aristarchus covered the ground of the Elements (including solid geometry and the geometry of the sphere), had established the main properties of the three conic sections, had solved problems which were beyond the geometry of the straight line and circle, and finally, before the end of the third century B.C., had been carried to its highest perfection by the genius of Archimedes, who measured the areas of curves and the surfaces and volumes of curved surfaces by geometrical methods practically anticipating the integral calculus.

"To understand how all this was possible we have to remember that the Greeks, pre-eminently among all the nations of the world, possessed just those gifts which are essential to the initiation and development of philosophy and science. They had in the first place a remarkable power of accurate observation; and to this were added clearness of intellect to see things as they are, a passionate love of knowledge for its own sake, and a genius for speculation which stands unrivalled to this day. Nothing that is perceptible to the senses seems to have escaped them; and when the apparent facts had been accurately ascertained, they wanted to know the *why* and the *wherefore*, never resting satisfied until they had given a rational explanation, or what seemed to them to be such, of the phenomena observed. Observation or experiment and theory went hand in hand. So it was that they developed such subjects as medicine and astronomy. In astronomy their guiding principle was, in their own expressive words, to 'save the phenomena.' This meant that, as more and more facts became known, their theories were continually revised to fit them."

Contents—Part I, *Greek Astronomy to Aristarchus*, 1–37: Thales; Anaximander; Anaximenes; Pythagoras; Parmenides; Anaxagoras; Empedocles; The Pythagoreans; Œnopides of Chios; Plato; Eudoxus, Callippus, Aristotle; Heraclides of Pontus. Part II, *Aristarchus of Samos*, 38–56: The heliocentric hypothesis; On the apparent diameter of the sun; On the sizes and distances of the sun and moon; On the year and 'great year'; Later improvements on Aristarchus's figures. Bibliography, 57–58. Chronology, 59.

Problems and Solutions. Associateship Examinations, Parts I and II, 1915–1919. New York, Actuarial Society of America, 1921. 8vo. 133 pages + 46 figures. Price $2.00.

Foreword: "The problems herein set forth with their solutions comprise all of the problems set in the years 1915 to 1919 inclusive, in Parts I and II of the examinations for admission to Associateship in the Actuarial Society of America. These problems and solutions are published primarily for the use of students preparing for these particular examinations; but they will unquestionably be of value to many who are teaching or studying mathematics in high school or college.

"Prior to 1920 these two examinations comprised what was known as *Section A* of the Associateship examination. The nomenclature has been changed so that they are now known simply as Part I and Part II of the Associateship examination.

"In many instances the solutions as set forth are not the only solutions of the given questions and it is not our intention to infer that the published solutions would have been more acceptable than any others to the Examination Committee of the Society. We have simply attempted to present a correct solution to each problem. The major part of the work of editing and arranging the solutions for publication was done by Dr. LESTER R. FORD of The Rice Institute, working in coöperation with the Educational Committee [J. M. Laird, J. F. Little, E. W. Marshall, H. N. Stephenson, and M. A. Linton, chairman] of the Actuarial Society, under whose supervision the book has been published. Charles M. Taylor, a student of the Society, rendered valuable service in reading the proof and making helpful suggestions."

The volume contains 279 problems in all: 9 in arithmetic, 51 in elementary algebra, 16 in plane geometry, 36 in plane trigonometry, 15 in analytical geometry, 9 in bookkeeping, 45 in advanced algebra, 20 in the theory of probabilities, 28 in calculus of finite differences, and 50 in calculus.

NOTES.

The concluding number of *Proceedings of the Royal Society*, London, series A, volume 98, published March 24, 1921, contains a fifty page notice of "John William Strutt, Baron Rayleigh, 1842–1919." There is also a fine frontispiece portrait.

The Mannheim & Polyphase Slide Rules. A Self Teaching Manual with tables of settings, equivalents and gauge points is the title of an 80-page pamphlet mainly by W. E. BRECKENRIDGE, associate in mathematics at Columbia University (New York, Keuffel & Esser, 1920). The supplement, "The slide rule in trigonometry" (pages 63–77), was written by Professor J. M. WILLARD, of the State College of Pennsylvania.

A. E. H. Love's *Theoretical Mechanics: an introductory treatise on the principles of dynamics, with applications and numerous examples* was first published by the Cambridge University Press in 1897. A second edition with few changes appeared ten years later. Of this, an authorized German translation by R. Polster was published in 1920 (Berlin, Springer, 14 + 424 pages. Price 48 marks). For English measures German have been substituted, and an alphabetic subject index has been added.

Various reviewers of Sir Thomas Heath's *Euclid in Greek, Book I, with Introduction and Notes* (Cambridge, 1920) [see, for example, *1920*, 263–266] seem to have overlooked the fact that only four years previously G. C. Sansoni of Florence published the very neat little volume edited by Giovanni Vacca with the following title: *Euclide. Il primo Libro degli Elementi, testo Greco, versione Italiana, Introduzione e note* (1916. 12mo. 20 + 122 pp.). On the last four pages there is a glossary of Greek words with the Italian equivalents.

The concluding number of the *Bulletin of the American Mathematical Society*, volume 27, was for June–July, 1921. It has been decided that in the future the volumes shall begin in January. Hence the first number of volume 28 is to be that for January, 1922.

Between 1913 and 1919 the following volumes of the *Opera Omnia* of Tycho Brahe have been published at Copenhagen (*1920*, 421): I, II, III, IV part 1, and VI. The first part of volume V (*Astronomiae Instauratae Mechanica*, 1598; 213 pages) has recently been published.

In *Il Bollettino di Matematica*, volume 17, 1920, pages 61–77, A. Natucci reviews for the tercentenary of the invention of analytic geometry (*1921*, 179) the edition of the works of Descartes edited by C. Adam and P. Tannery.